

PATENT COOPERATION TREATY



PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PCT-035	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/KR2003/001864	International filing date (day/month/year) 15 SEPTEMBER 2003 (15.09.2003)	Priority date (day/month/year) 25 SEPTEMBER 2002 (25.09.2002)
International Patent Classification (IPC) or national classification and IPC IPC7 C08K 5/5357		
Applicant CHEIL INDUSTRIES INC. et al		

<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>3</u> sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of _____ sheets.</p>	
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the report</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>	

Date of submission of the demand 23 MARCH 2004 (23.03.2004)	Date of completion of this report 13 JANUARY 2005 (13.01.2005)
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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/KR2003/001864

I. Basis of the report

1. With regard to the elements of the international application:*

- ☒ the international application as originally filed
- ☐ the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the claims:
pages _____, as originally filed
pages _____, as amended (together with any statement) under Article 19
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the drawings:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language English which is

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☒ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/ or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed." and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item I and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION

International application No.

PCT/KR2003/001864

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims	1-7	YES
	Claims	NONE	NO
Inventive step (IS)	Claims	1-7	YES
	Claims	NONE	NO
Industrial applicability (IA)	Claims	1-7	YES
	Claims	NONE	NO

2. Citations and explanations (Rule 70.7)

Reference is made to the following document:

D1 : EP 1,069,157 A1 (Cheil Industries Inc.)

The present invention according to claims 1-7 relates to a flame retardant styrenic resin composition comprising: (A) 70 to 99.5 parts by weight of a rubber-modified polystyrene resin; (B) 0.5 to 20 parts by weight of a ring-shaped alkyl phosphonic acid ester compound; and (C) 0 to 10 parts by weight of a polyphenylene ether. Also, the additives such as anti-oxidants are employed in the amount of 0 to 50 parts by weight on the basis of 100 parts by weight of the base resin additionally.

Document D1 cited in the search report, which is regarded as the closest prior art, discloses a flameproof thermoplastic resin composition comprising: (a) 40 to 95 parts by weight of a rubber modified styrene-containing resin; (b) 5 to 60 parts by weight of polyphenylene ether resin; (c) 2 to 40 parts by weight of a styrene-containing copolymer resin or a styrene-containing graft copolymer resin; and (d) 5 to 30 parts by weight of an aromatic phosphoric acid ester.

Comparing the present invention with D1, the subject matter of claims 1-7 differs in a ring-shaped alkyl phosphonic acid ester compound as a flame retardant. So, this thermoplastic resin composition with the above ester compound has good flame retardancy as well as mechanical strength and heat resistance.

Therefore, the subject matter of claims 1-7 is considered to be novel, to involve an inventive step and to be industrially applicable.